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February, 1983

PAARA

Graphs



**palo alto
AMATEUR
RADIO ASSN.**

MENLO PARK C.D. RADIO CLUB, K6YQT

PAARagraphs is the official organ of
The Palo Alto Amateur Radio Association & the Menlo Park Civil Defense Radio Club

1983 CLUB OFFICERS

President : Gerry Tucker WA6LNV 326-4908
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Secretary : Gerry Wagstaffe W6NIR 325-4670
Treasurer : George Nixon GI3OEN 854-6445
Trustee, K6OTX : Fred Canham K6YT 948-9238
Property : Ed Fairbanks W6AIM 322-0319
Co-Property : Fred Canham K6YT 948-9238
Club Officer : Steve Stuntz K6FS 322-4952
Club Historian : Jerry Zobel W6ARA 322-0063
Club nets : 147.45 MHz, Monday 8:30 pm L.T. & 14.287 MHz, Monday 9:00 pm L.T.

BOARD OF DIRECTORS

Chairman: Gerry Tucker WA6LNV
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PAARA POLICIES

Membership in PAARA is \$6.00 per calendar year (payable in January), which membership includes a subscription to PAARagraphs. Freebee distribution to those who indicate an interest in the Club, and as an inducement to their becoming members, and is subject to change with changing interests in the Club. Make payment to: PAARA, P.O. Box 911, Menlo Park, CA 94025.

PAARAGRAPHS STAFF

Editor : George Nixon GI3OEN
Advert. : Swede Swenson N6CHL
Mailing : Bill KA6LZI
 McElhinney
 Sue Lindner LQVLY

Written contributions to the P.O. Box above, or to the Editor, 1140 Sherman Avenue, Menlo Park, CA 94025. Tel. 854-6445. Deadline is two or three days after the Board of Directors meeting.

Friday, February 4, 1983

7:30pm

R E G U L A R M E E T I N G

Mini-Auction of Gear Left Club

by

Estate of Al Stainback, JA6GVP

Al left the Club, in his Will, much of his radio gear. This Mini-Auction is open to PAARA members only. The remainder of the meeting will be devoted to eyeball QSOs, with possibly a report on Cable TV by Bill Jenkins, WB6LML, and a report on Field Day preparations by Fred Canham, K6YT.

Meeting to be held at the Menlo Park Recreation Centre, Alma at Mielke, Menlo Park. Future meetings: March 4, April 1.

Circle the Date

February 4, 1983

President's Corner: Thank goodness George, GI30EN, is back again. You can't appreciate how much work goes into this paper until you try to do part of it yourself. Incidentally, I hope the volunteer articles keep coming in this year. They are a vital part of an interesting Paaragraphs and always make fun reading. Of particular recollection are those of Jerry Zobel, W6ARA, and Dave Daniel, KB6WP. Jot down a few notes about something interesting that has happened to you in Ham Radio; then discipline yourself to spend 30-40 minutes writing a short article around it. If we have some certificate hunters in the Club (and I think we do), how about telling us how you went about collecting that last country, etc. A fair amount of the last Board meeting was taken up reviewing this year's activity schedule. It is extremely busy! There are PAARA activities, nearby club activities, and ARRL activities that should keep us all jumping. If you feel that we should be getting involved in something, speak up now. The officers are ready to back new things with effort and money, but be sure you are ready to be the pivot man for your idea. We had a great crowd at the last meeting, about 60 members and guests. This was, no doubt, due largely to our DXpedition speaker, Gary Caldwell, WA6VEF, who gave us a blow-by-blow account of what it is like to plan and successfully execute an attack on a world DX record. Be at the February meeting and bid on the items left the Club by the late Al Stainback, WA6GVP. This is a mini-auction that is open to PAARA members only.

de Gerry Tucker, WA6LNV

PAARA Financial Statements: Pursuant to a Board resolution (see the Board Meeting report later), the Club Profit & Loss Statement for 1982, and the Balance Sheet as of 1 January, 1983 are given below.

P & L Statement

Membership dues - 1982		435.00
Membership dues - 1983		96.00
Paaragraphs income	645.00	
Paaragraphs expense	<u>1153.49</u>	
Net		-508.49
Raffle sales	302.25	
Raffle & refreshment exp.	<u>443.79</u>	
Net		-141.54
Auction commissions	1104.50	
Auction expense	<u>164.20</u>	
Net		940.30
Functions income	217.00	
Functions expense	<u>570.33</u>	
Net		-353.33
Interest income		480.63
QST commissions		4.00
Other income		<u>37.00</u>
Total Gross Profit		989.57
Less:		
General expense	57.50	
Insurance	323.00	
Trailer licence	<u>26.00</u>	
Total expense		<u>406.50</u>
Net Profit		<u><u>583.07</u></u>

Balance Sheet

Checking a/c		582.03
Savings a/cs (4)		4281.34
Petty cash		37.57
a/c receivable	368.00	
Reserve for bad debts	<u>99.00</u>	
Net		269.00
Fixed assets		<u>1931.22</u>
Total assets		<u><u>7101.16</u></u>
Capital & prior years' surplus		6518.09
Surplus for 1982		<u>583.07</u>
Total Capital		<u><u>7101.16</u></u>

Notes to financial statements: Much of the Club's savings are reserved for the eventual purchase of another trailer, and for the purchase of extra Field Day equipment.

PAARA policy has always been to stay within budget, and to accumulate some capital each year, to provide a financial cushion for emergencies. In view of the example set by our late Governor, Jerry Brown, who took office with a State budget surplus of \$6,000,000,000, and has just left office with the State broke, few people could criticise the conservative policy of the PAARA Directors, and hopefully, few people will want PAARA to embark on a spending binge.

New Members:

Bill Anderson, KD7ZI, who did not fill out an application form, and hence we do not know his address.

Ken Dueker, no call, 37 Ringwood Avenue, Atherton.

Arthur Bolton, NM6K, 1161 Bay Laurel Dr., Menlo Park.

Jim Learned, no call, 742 Crompton Rd., Redwood City.

William Schooler, KF6EP, 352 Bay Rd., Atherton.

Kurt Feiler, KA6KYU, 2763 Marlborough Ave., Redwood City.

Scott Hinnrichs, W6HRN, 1530 San Antonio St., Menlo Park.

Dale Dwelley, W6STY, 45 Lorelei Lane, Menlo Park.

New address: Patricia Winter, N6BIS, P.O. Box 57,
Menlo Park, CA 94025

An Electric Xmas

by

Gerry Tucker, WA6LNV

A funny thing happened to me on Christmas Day. An uncommonly large group of relatives had gathered, finished dinner, and were attacking a generous stack of presents from under the tree. A large number of house lights were on and both refrigerators were groaning under the strain of left-overs. Suddenly the lights gave a noticeable flicker. After having been through the four-hour Palo Alto blackout of two days prior, it was easy to dismiss this flicker as Pacific Gas & Electric still getting things organized.

After the second flicker, a few minutes later, we decided the prudent thing was to have a few more candles nearby. I went outside, and in the dark, made a brief flashlight inspection of my ancient 110V service, discovering that tree movement caused by the high wind had pulled the strain relief and insulator loose at the house. A call to the Palo Alto City Utility netted a promise of investigation the next day.

After re-entering the house, I entertained everyone as I took a voltmeter and recorded the outlet voltage during each brown-out. The "normal" 108 volts would dip to 88 volts during the 5-10 second dim periods. This continued until I decided it was best to disconnect what appeared to be a faulty refrigerator compressor. What a night to lose left-overs!

Boxing Day dawned with the sound of voices in my driveway. I leaped out of bed eager to coordinate the repair activities. A division of labour, it would have to be. The Palo Alto repairman could only take action on the part of the wire at the pole. He made a shiny new connection, but, alas, there was no improvement in my voltage

regulation. The next crew arrived a couple of hours later, installed repair parts at the house end, but there was still no improvement in voltage regulation.

I now decided that a more aggressive approach was needed on my part. With a flashlight, I inspected some hard-to-get-at fuses, and refreshed my memory of the fact that the return (neutral) lines are fused in my house, and in fact, these were blown! New fuses, full voltage.

By this time, my dilemma had attracted the curiosity of the City inspector. After an update and a quick inspection, he had some simple advice. "Get in touch with modern times and put in a 220 volt service."

The next morning, I went down and got the required permit, collected the necessary parts, and by lunchtime of the following day, had installed the new wiring and had it inspected.

Before the crews came to update my connection, however, I made some interesting measurements. With the fuses properly installed, and three lamps added in turn for a load, I obtained the following current and voltage readings.

0 amps - 121.2 volts; .6 amps - 121.0 volts; 1.2 amps - 120.8 volts; and 1.8 amps - 120.6 volts.

A quick application of Ohm's Law tells us that the source resistance is .33 ohms. Next, I removed the fuses in the return line, which meant that the return path to the utility company was made through a five-eighths inch diameter copper-plated grounding rod, located in the dry earth under the basement of the house. This path was in parallel to a connection made to a nearby water pipe.

The following current and voltage readings were now obtained:

0 amps - 117.9 volts; .508 amps - 116.2 volts; 1.16 amps - 114.4 volts; and 1.74 amps - 112.1 volts.

Dividing the change in voltage by the change in current gives a source impedance of about 3.3 ohms. This would seem to indicate a ground resistance in Palo Alto of about 3 ohms. What are the implications of this to ham radio? Some vertical antennas have impedances as low as 10 ohms near ground. The earth would appear as a lossy resistor to such systems and these would obviously benefit from radials. Can antennas be modified to increase the impedance as seen by the ground portion of their structure? Is three ohms typical? I would be interested in seeing further commentary on this issue, perhaps published in Paaragraphs.

P.S. My cap is tipped to the various Palo Alto services who were timely and generous to a fault in helping me.

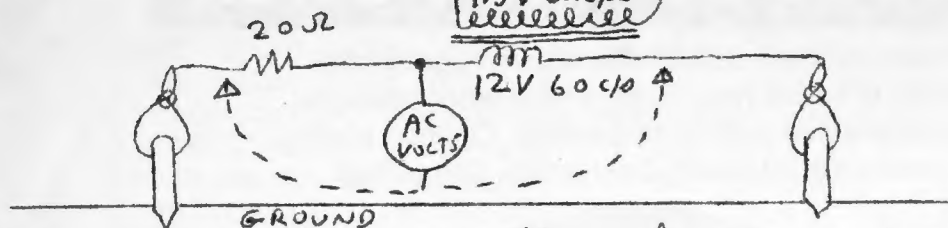
Ed. Your call for comments on ground resistance will be answered, Gerry. It so happens that ground resistance is one of the few subjects that your Editor knows something about.

First, ground resistance @ 60 cycles can be measured by using two identical ground systems, spaced twenty or more feet apart. Measure the ac resistance between the systems as shown in the diagram. Ac is used rather than dc to avoid electrolytic effects. The resistance measured is the resistance between system A and ground in series with the resistance between system B and ground. The earth itself, having an infinitely large cross-sectional area, has zero resistance for this purpose. Assuming both grounding systems are similar, the resistance of one system to ground is half of the resistance measured above.

For antenna purposes, the resistance can be lowered by driving your ground rod deeper into the water table, or by increasing the surface area of the grounding rod. Results that I obtained some years ago, made month by month using two 8-foot grounding rods, were that the resistance varied from 2.5 ohms in the winter to 7.5 ohms in the drought in summer. Readings were taken in Palo Alto and

-9-

115V 60 c/s
leeeeeeeee



Assume 12V across transformer and 9V across resistor. Therefore rod-to-rod resistance is $\frac{20 \times 3V}{9V} = 6.7\Omega$. Therefore rod to ground is 3.85Ω .

FOR SALE: KWM-2 and separate power supply with manual. \$425.00. Contact George Downing, KJ6N, at 328-2449.

Board Meeting Report: The main topic of discussion was whether or not to break with long-standing PAARA policy and publish detailed financial statements. Fred Canham, K6YT, argued in favour of publication, saying that people were beginning to believe that the Club was fabulously rich, and that he was tired of being asked by Jerry Starkey, WA6LIJ, and Sy Stein, WA6ROM, how much money the Club had.

Your Treasurer argued against the resolution, saying that (1) the Directors knew the figures, (2) Jerry & Sy should be kept in the dark, and (3) publication might result in a raid on the Treasury by Jerry Brown types; however, the resolution passed.

Fred Canham then gave us the year's Flea Market schedule for the Foothill College Parking Lot.

3/19 SPECS

4/16 Redcross

5/14 EMARC

7/16 Perham

8/13 PAARA

9/10 FARS

The PAARA picnic will be held on July 10 at Huddart Park, and the PAARA Auction will be held on October 8 at the Ampex Cafeteria.

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